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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/071,027 | 02/08/2002 | Tapesh Yadav | A54 | 8800 |

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EXAMINER

WYSZOMIERSKI, GEORGE P

| | |
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| ART UNIT | PAPER NUMBER |
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1742

DATE MAILED: 04/14/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/071,027

Applicant(s)

MARDILOVICH ET AL.

Examiner

George P Wyszomierski

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 March 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-9, 20 and 21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-9, 20 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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1. The Amendment filed March 25, 2003 was not considered in preparing the Office Action mailed March 27, 2003. Therefore, the March 27 Office Action is withdrawn, and a new Office Action follows.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, 6-9, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Helble et al. (U.S. Patent 5,358,695) or Bickmore et al. (U.S. Patent 5,984,997), either of which in view of pages F-45 thru F-51 of the CRC Handbook and in view of Pirzada et al. (U.S. Patent 5,788,738).

The Helble and Bickmore patents disclose preparing mixtures or solutions containing metal compounds and processing these mixtures in order to form fine (i.e. nanoscale) powders. The prior art processes include combustion with oxygen (see Helble column 4, lines 1-15 or Bickmore column 5, lines 27-50). More than one metal may be present in the starting material; see Helble column 6, line 25 or Bickmore examples 3-7. The mixture may comprise water, a hydrocarbon, or an acetate; see Helble column 4, lines 21-35 or Bickmore column 4, lines 22-35 and column 9, line 20. This process forms nanoscale powders as defined in instant claim 21.

Helble and Bickmore do not specify the viscosity of the starting material, as required by the instant claims, and do not specify quenching using a Joule-Thomson quench. These

differences are not seen as resulting in a patentable distinction between the prior art and the claimed invention because:

a) The examiner submits that the vast majority of common liquids have a viscosity within the range as presently claimed, as evidenced by pages F-45 thru F-51 of the CRC Handbook. This would include both water and the other liquids as used by Helble and Bickmore, e.g. furfural, naphtha, nitric acid, ethylene glycol. In most cases, the viscosities recited in the CRC Handbook are near the lower end of the presently claimed range, so that even the addition of large amounts of solid materials such as metal compounds would raise the viscosity somewhat but would still result in a composition having a viscosity well within the presently claimed range.

b) The Pirzada patent indicates that it was well-known in the art at the time of the present invention to use the Joule-Thomson effect to quench a nanoscale powder, and that such a quenching step is especially useful in producing high quality nanopowders; see Pirzada column 8, lines 23-56. The combination of Bickmore with Pirzada is particularly relevant because Bickmore column 5, lines 53-54 refers directly to Pirzada (S.N. 08/707,341 resulted in the Pirzada patent).

Thus, the disclosures of Helble et al. or Bickmore et al., together with the teachings of the CRC Handbook and Pirzada et al., would have rendered processes and materials as presently claimed obvious to one of ordinary skill in the art.

4. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Helble et al. or Bickmore et al. in view of the CRC Handbook and Pirzada et al., as set forth supra, and further in view of Marsh et al. (U.S. Patent 4,649,037).

Helble and Bickmore do not disclose using an alkanoate precursor in their respective processes. Marsh et al. indicates that it was well-known in the art, at the time of the present

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invention, to employ an alkanoate precursor (see claim 4 of Marsh) in a mixture which is processed to produce a powder as small as 0.05 micron (50 nm) in diameter; see Marsh column 6, line 64. Thus, to include an alkanoate as part of the initial reactants in the Helble or Bickmore processes would have been obvious to one of ordinary skill in the art, and the teachings of the CRC Handbook and Pirzada et al. further render certain aspects of the claimed invention obvious for the same reasons as discussed in item no. 3 supra.

5. Claim 21 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-45 of U.S. Patent No. 6,344,271.

Although the conflicting claims are not identical, they are not patentably distinct from each other because both the instant claim and the '271 claims define certain nanoscale materials, which may be the same chemically in both instances. While the '271 claims do not recite any process steps, referred to in product-by-process terms in the instant claim, no apparent physical difference exists between the materials as defined in the '271 claims and those defined in the instant claim. Thus, the presently claimed nanoscale materials are held to be prima facie obvious to one of skill in the art in view of the claims of the '271 patent.

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Wyszomierski whose telephone number is (703) 308-2531. The examiner can normally be reached on Monday thru Friday from 8:00 a.m. to 4:30 p.m. Eastern time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached on (703) 308-1146. The fax phone number for this Group is (703) 872-9310 for all correspondence except for After Final amendments in which case the Fax number is (703) 872-9311. The Right fax number for this examiner is (703) 872-9039. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.



GEORGE WYSZOMIERSKI
PRIMARY EXAMINER

GPW
April 9, 2003